



GKB

THE WORKER IS KING



Vstrong

Manual_Vstrong_EN_2305

VS120-160-200-240

EC DECLARATION OF CONFORMITY CONCERNING MACHINES
According to Directive 2006/42/EG, annex 2, point 1, A

GKB Machines B.V.
Middelweg 1
2992 SP Barendrecht
Nederland

hereby declares that the

GKB Vstrong

Type: VS120 - VS160 - VS200 - VS240

to which this declaration relates are in conformity with the provisions of:

- Directive 2006/42/EC Machinery Directive

At Barendrecht, 23/05/2023



T.J.W. Kraaijeveld

UKCA DECLARATION OF CONFORMITY CONCERNING MACHINES
According to Machinery (Safety) Regulations 2008

Manufacturer:
GKB Machines B.V.
Middelweg 1
2992 SP Barendrecht
Nederland

UKCA Delegate
GKB Machines Ltd.
Warwick House, Ermine Buseniss Park, Spitfire Close
Huntingdon PE29 6XY
United Kingdom

hereby declares that the

GKB Vstrong

Type: VS120 - VS160 - VS200 - VS240

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1. FOREWORD

The information contained within these operating instructions covers the necessary use, safety, operation, and maintenance of the machines mentioned in the CE declaration. Before operating anyone of the machinery has to read this operating manual in its entirety. The manufacturer will not be held liable for an injury or damage which occurs from improper use.

It is the goal of the manufacturer to create excellent products, therefore we hold the right to make changes at any time and will not be held under obligation to previously delivered machines. Certain aspects, such as weight and dimensions, may change at any time without notice. Images are also not bound to interim changes.

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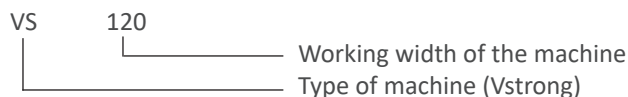
2. INTRODUCTION

The Vstrong is designed to scarify natural grass fields. The removed material is spread across the worked field on the rear side of the machine. The spreading distance can be limited by using the valve on the rear side. Optionally the Vstrong can be provided with a reservoir. The material is captured in order to deposit it at any preferred location. To create an optimal result it is recommended to work under relatively dry circumstances.

Every machine is marked with a code, as seen in the image below.

Example:

Model 'VS120':



The manufacturer shall not be held liable for any damage resulting from unintentional use.

3. CONTACT

Manufacturer:

GKB Machines B.V.
Middelweg 1
2992 SP Barendrecht
NETHERLANDS
info@gkbmachines.com
www.gkbmachines.com

Productnumber Manual: See footer/ front page

Your personal Dealer:

Your GKB dealer:

4. WARRANTY

The statutory warranty period of two years from the invoice date applies to the machines. Warranty repairs or product replacements do not extend the warranty period of the machine or parts. The guarantee does not apply to items arising from normal wear and tear or ageing.

A warranty procedure starts with an investigation to determine whether the problem is covered by the warranty. Your cooperation is required to verify that the warranty conditions have been met. To this end, keep a record of the maintenance and repairs carried out in a maintenance logbook.

If the manufacturer receives a warranty notification, it will be determined whether the defect is covered by the warranty. If this is the case, a suitable solution will be found in consultation with the customer. In all cases, consult with the dealer before you try to solve the problem yourself. Warranty can only be given if the machine is in its original condition.

The manufacturer's written permission is required to ensure that the machine does not deviate in any way from the aforementioned purpose of use. Use other than as described will lead to the loss of product liability and warranty.

Product liability obliges the manufacturer and the dealer, when selling machines, to provide a manual and to instruct the user on the operating, safety and maintenance instructions.

The manufacturer is not responsible for any (unintended) damages to grass or sport fields.

Caution! The operating instructions must also be supplied if the machine is subsequently exchanged or resold by the user. Also inform the new user of the regulations.

5. SAFETY

5.1. General

The safest operation requires these machines are operated exactly according to these instructions. In addition, there are also safety warnings on the machines to warn of potential dangers and instructions on how to handle them. The only way to 100% guarantee no property damage or personal injury occurs is to follow these instructions. While using this machine, keep this handbook nearby and always ensure that safety markings on the machines are visible.

Any local safety regulations, including road traffic regulations, must be observed at all times.

The warranty, CE marking, and product liability automatically expire upon changes being made to the machine without consultation of the manufacturer.

The machine is equipped with several safety stickers, to instruct the user how to handle the machine with care. An example of a safety sticker is shown next.

Annex III describes every type of safety sticker. Read them carefully before using the machine.



5.2. Safety instructions

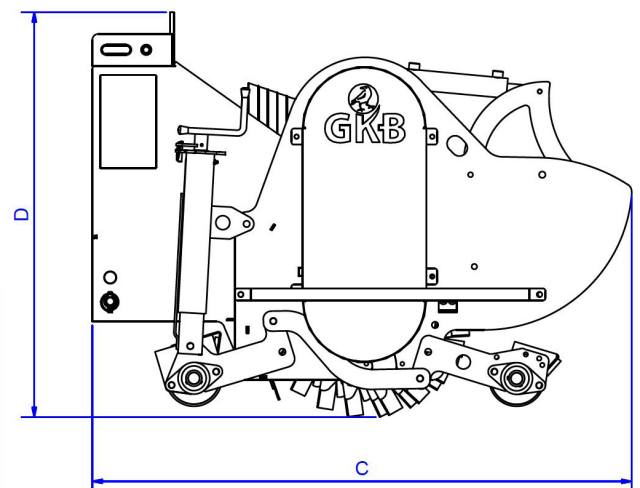
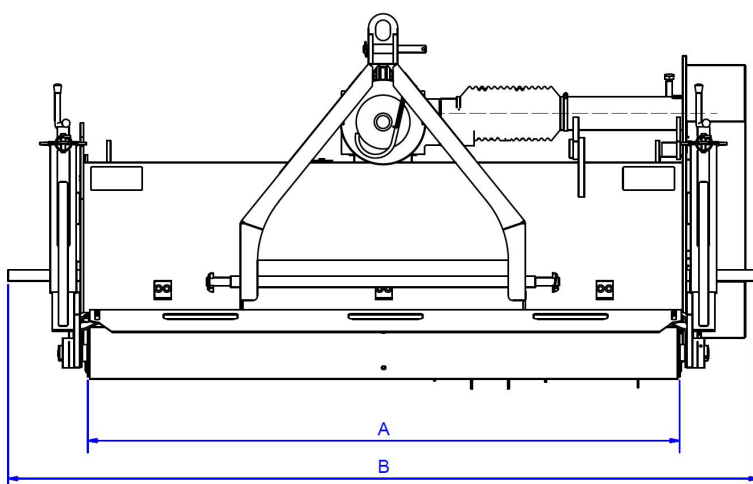
1. These operating instructions must be read and understood by everyone who works, checks or maintains the machine in order to avoid risks and to avert dangers.
2. Pass on all safety and operating instructions to all users.
3. The machine may only be used for the intended work.
4. For optimum performance, the surface to be worked on must be flat and free of obstacles.
5. Only use parts and accessories specified by GKB. The installation and/or use of non-original parts and accessories may change or impair the specific characteristics of the machine. GKB is excluded from any liability for damage resulting from the use of non-original parts and accessories.
6. Before working with the machine, it is necessary to become familiar with all control components, their functions, safety aspects and risks. The machine may therefore only be operated and maintained by qualified personnel.
7. Maintenance must be carried out in accordance with the instructions in the manual. The maintenance carried out must be recorded. Never come under the machine in any situation!
8. Before commissioning, the safety of operation and transport must be checked. The inspection includes, but is not limited to, the correct functioning of the mechanical, hydraulic and electrical components.
9. If leaks are suspected, stop the entire hydraulic system and allow it to cool down before carrying out maintenance.
10. Before use, check that there are no persons and/or obstacles within the working area of the tractor and the machine.
11. There are several warning labels on the machine. These stickers contain important instructions for safe use and must always be clean and visible.
12. All safety devices must be attached to the machinery and be in good working order. Timely replacement of worn and damaged protective equipment is required. This also applies to the warning labels. Fixed guards must always be present during operation.
13. The operator's clothing must be close-fitting. If necessary, wear head and hearing protection.
14. Driving on the machine during work and transport is not permitted.
15. When using the machine on public roads, the (local) traffic regulations of the respective country apply. Observe the markings, lighting and safety devices applied. Only drive if all required permits and approvals have been obtained.
16. Maintain an adjusted speed when the machine is hanging behind the tractor. Especially when driving over thresholds or poor road conditions. Always place the topline in the round hole!
17. The driver is responsible for ensuring that the tractor and the machine are on public roads in accordance with the regulations. Permitted axle loads and weights must be considered.
18. If the driver is unable to oversee the carriageway immediately behind him, he must be instructed when reversing. Instructors must be within the driver's field of vision only and never between the tractor and the machine.
19. Connect the machine with the tractor according to prescribed tools.
20. When connecting and disconnecting, parking or storing the machine, it must be prevented that the machine moves unintentionally. Depending on the machine, this can be prevented by applying the brakes, using the parking position or locking the wheels by placing wedges.
21. During use, transport or storage on a sloping slope or during maintenance, one should be aware of the risk of tipping over.
22. Prevent burns by careful use of hot components such as oil lines and engines. When carrying out maintenance work, allow the system to cool down completely.
23. It is not allowed to drive or maintain the machine under the influence of medication, drugs or alcohol.
24. Using headphones or hearing protection with music or radio is not permitted.
25. Smoking and open fire is prohibited in and around the machine.

5.3. Product specifications Vstrong

	Unit	VS120	VS160	VS200	VS240
Dimensions					
Working width A	cm	120	160	200	240
Total width B	cm	165	200	245	280
Length C	cm	125	135	155	155
Length incl. collection bin D	cm	135	145	-	-
height E	cm	85	100	110	110
General specifications					
Empty weight	kg	480	650	750	900
Max. noise*	dB(A)	80	80	80	80
Outgoing shaft speed	rpm	540	540	540	540
Volume of collection bin	l	200	265	-	-
Specifications towing vehicle					
Power**	pk	35-45	40-70	65-95	90-110
Pumpcapacity oil	l/min	20	40	40	50
Max. hydraulic pressure	bar	150	150	150	150

* When using personal protective equipment, bear in mind that in many cases the sound of the machine is drowned out by the towing/powering vehicle.

** Geringe Gangschaltung erforderlich.



6. CONSTRUCTION OF THE VSTRONG

A Combinator has many different components and parts. This chapter will describe each of them.

6.1. The frame

The frame of the Vstrong forms the basis of the different components of the machine. The three-point hitch connects the machine to the towing vehicle.

6.2. The rotor

In the heart of the Vstrong one can find a rotor shaft. By default it consists of 3-millimeter hard metal milling knives. These cut up until five centimeter deep in the turf. The rotor is driven against the driving direction using a PTO shaft. Optionally, the rotor can be supplied with two or four millimeter knives.

Between the towing vehicle and machine a PTO shaft has been placed. Using a gearbox and chain transmission the rotor is driven.

6.3. The spreading valve

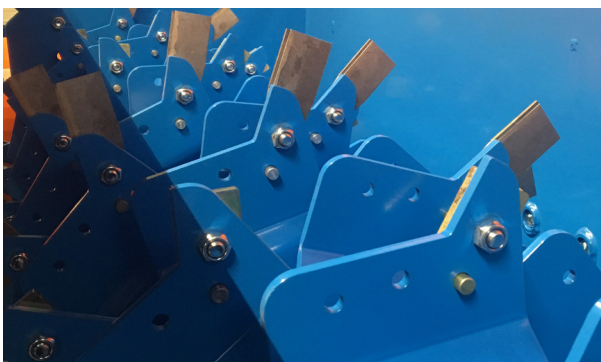
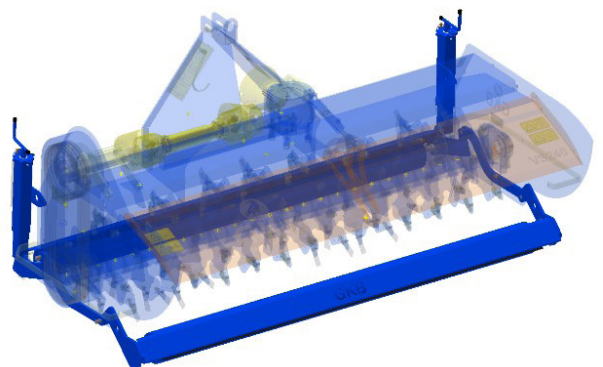
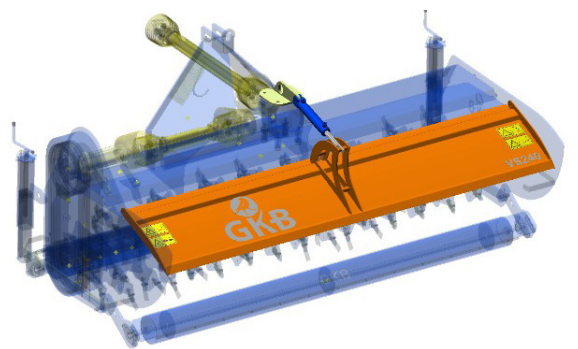
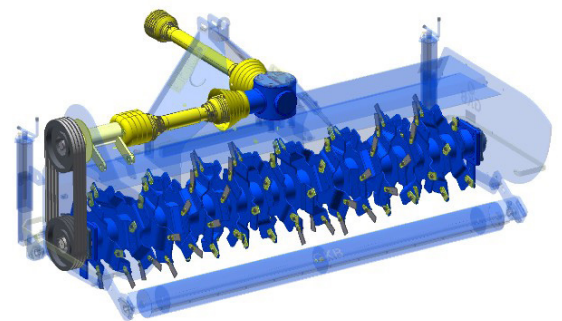
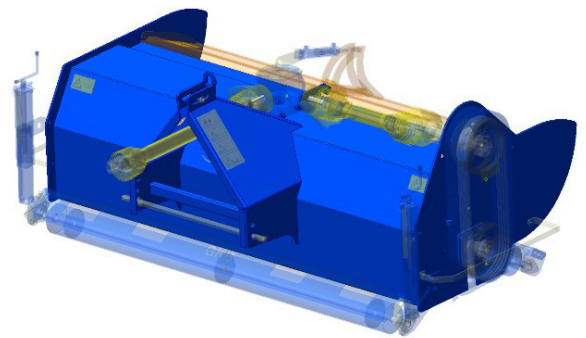
The machine is provided with a spreading valve on the rear side to send the material outside. The spreading distance is decreased by partially closing the valve. Optionally the Vstrong 120 and 160 models are provided with a reservoir. The material is captured so that the field remains clean. The reservoir can be emptied from the driver's seat.

6.4. The guide rollers

Using the patented shuttle system of the rollers the milling depth is set. These two rollers are adjustable in height using two spindles.

6.5. The hydraulic components

The spreading valve and reservoir are served using cylinders. When the machine is operated with a reservoir, two cylinders are applied.



7. OPERATION VSTRONG

7.1. Connecting and disconnecting the machine

The following steps describe how to connect and disconnect the Vstrong.

Connecting:

- | | |
|---|---|
| 1 | Make sure that the tractor and machine are placed horizontal; |
| 2 | <p>Connect the machine to the three-point hitch of the tractor and secure the attachment points with the locking pins;</p> <p>Attach the top link in the round hole of the hitch to lift the machine;</p> <p>Connect the hydraulic hoses and PTO-shaft.</p> |
| 3 | Lift the machine and check if the distance between the machine and ground is equal on the left and right side. If necessary, change the positions of the adjustable stabilizer arm; |



 See risk analysis: Rotor/ Drive-unit/ machine environment

Disconnecting:

- | | |
|---|--|
| 1 | Make sure that the tractor and machine are placed horizontal; |
| 2 | <p>Lower the machine slowly until it completely rests on the ground;</p> <p>Disconnect the hydraulic hoses and PTO-shaft;</p> <p>Disconnect the tree-point hitch and move the tractor away from the machine.</p> |



 See risk analysis: Rotor/ Drive-unit/ machine environment

7.2. Start with fraising

1	<p>Position the machine at the desired height by adjusting the spindles at the front of the machine.</p> <p><i>Always make sure that the machine can't move and is switched off.</i></p>
2	<p>Switch on the PTO-shaft (540 RPM); The rotor starts rotating;</p> <p>Start driving, lower the Vstrong and start to fraise for a couple meters;</p>
3	<p>Stop fraising and stop the machine. Check if the desired depth is reached and if the entire surface is fraised equally. If not, change the height by adjusting the spindles.</p> <p><i>Pay attention, never come under the machine!</i></p>



See risk analysis: Rotor/ Drive-unit/ machine environment

7.3. Transport and storage

Transport:

When transporting the machine, a suitable means of transport must be selected. Make sure that the machine is secured against rolling away and tipping over. If you don't have sufficient knowledge for a transport, carry it out by a specialised transport company. Provide at least four attachment points on the transporting vehicle.

Storage:

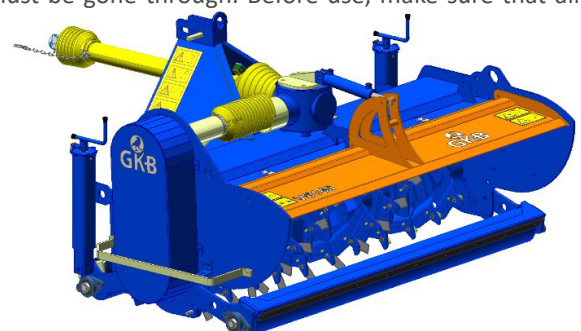
The following points must be taken care when storing the machine:

1. Before storage, clean the machine in such a way that no sand or other impurities are left behind;
2. Store the machine at a dry place;
3. Check if the machine is positioned right with the support legs or place wheel chocks in front and behind the wheels;
4. Never put the machine away on the brake (if applicable);
5. Empty the tanks of the machine if they are filled with water;
6. To prevent corrosion of uncoated parts, apply a protective oil layer;

If the machine is to be used again after storage, all maintenance points must be gone through. Before use, make sure that all components are working properly.

Lifting:

The machine may only be lifted at the designated attachment points. It is important that all existing attachment eyes are used to lift the machine safely. Attaching lifting equipment to other parts of the machine can cause serious damage to the machine and the environment. Make sure the machine is free of materials such as infill and seeds.



8. MAINTENANCE

8.1. Maintenance schedule

To maintain machine quality, adhere to the following diagram. The list of spare parts will show the correct parts to replace. See chapter 7.3 for safe execution of the maintenance points.

Always ensure that the machine is switched off, cannot move and has cooled down completely.

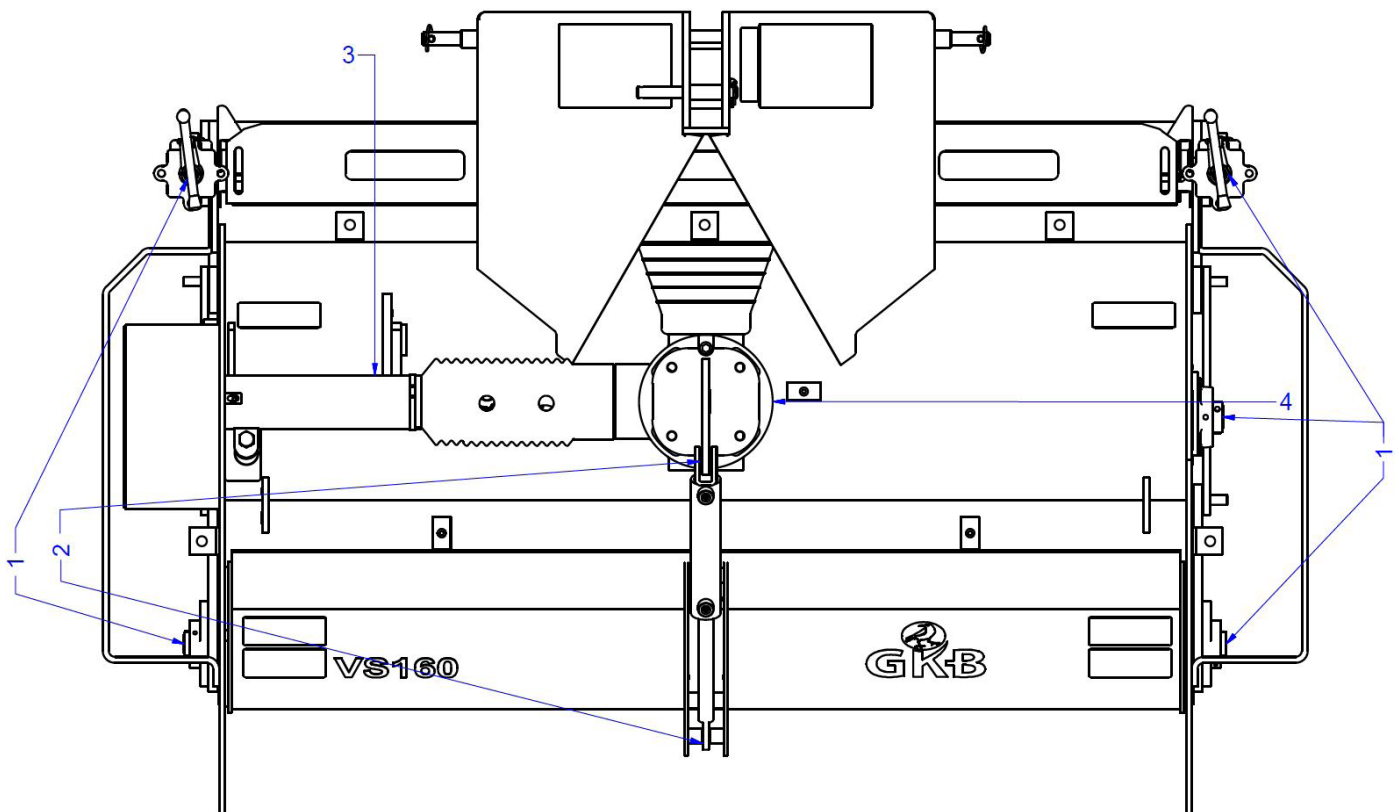
		Operating hours					
		Before use	50 h	250 h	500 h	1000 h	Annually
General	Outside cleaning of the machine	x					
	Check if all safety stickers are on the machine	x					
	Check for oil stains/ traces	x					
	Check freewheeling of the rotor	x					
	Check state of wearing parts for broken pieces or deformation	x					
Hydraulic	Clean the hydraulic main connections of the towing vehicle	x					
	Check the operation of hydraulic components	x					
	Check hydraulic components for damages/ leakages. Replace when needed.	x					
	Check hoses and fittings for dehydrations/ cracks			x			
Others	V-belt - Check tension on the belt (1000 Nm)			x			
	V-belt - Check for dehydrations/ cracks and replace when needed			x			
	Check locking pins	x					
	Tighten bolted connections of rotating parts		x				
	Tighten bolted connections of fixed parts			x			

Have mainenance carried out by certifiiced people if any of the points above are noted.

8.2. Lubrication scheme

For optimum machine performance, please refer to the plan below for lubrication of the maintenance points.

		Operating hours					
		Before use	50 h	250 h	500 h	1000 h	Annually
EP2 grease	1 Lubricate bearings		x				
	2 Lubricate hinge points of the cylinders			x			
	3 Lubricate tensionshaft (200ml needed)			x			
SAE90 oil	4 Check oil level of the gearbox	x					
	4 Change oil of the gearbox		x(1 ^{ste})		x		x

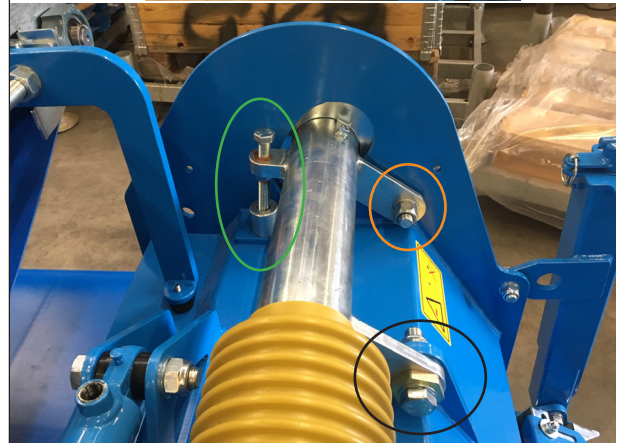


8.3. Performing maintenance

Always make sure that the machine is switched off, cannot move and has cooled down completely.

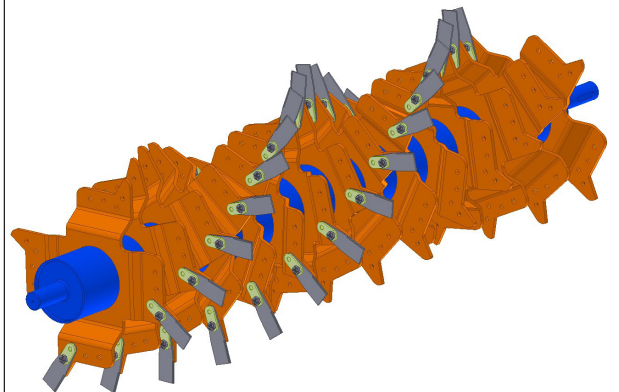
Tension the V-belt transmission:

- Remove the shielding of the transmission;
- Loosen the two bolts one turn; (Orange/ black marked)
- The V-belts can be tensioned by turning out the adjusting bolt; (green marked)
- Tension the V-belt until a static voltage of 1000 Newton is reached. It will be possible to twist the belt easily. To much tension leads to increased wearance;
- Align the two pulleys with the excentric bolt; (black marked)
- Tighten the bolts; (red + black marked)
- Tighten the nut at the bottomsides of the bolt; (green marked)



Changing scarifying blades:

- The rotor is provided with blades which are placed like a spiral;
- When using the whole rotor, it's fully equipped with blades;
- To create a cutting distance of 50mm, place the knives like the figure beside shows.
- This means that every plateholder is equipped with two scarifying knives in stead of four. Check if there is 50mm distance between the two knives.



9. FAILURES

If a failure is detected, please go through the following points before contacting your dealer.

<i>Symptom</i>	<i>Cause</i>	<i>Solution</i>
The result is ragged	Driving speed is too high	Decrease the driving speed
	The knives rotates too slow	Increase the speed of the rotor (until max. permitted speed)
	The field structure works negative	Start fraising in the perpendicular direction
	The blades are blunt	Sharpen or replace the knives
	The blades are crooked	Inspect whether the rotor or blades are completely straight
The fraised surface is not entirely equal	The machine isn't placed horizontal	Change the height of the machine by adjusting the stabilizer arms
	Inequalities in the field	The field isn't equal

10. END OF LIFE

To dispose of a machine, follow all local regulations. Practice appropriate safety measures.

Follow these steps:

1. Decommission the machine and shut it down hydraulically;
2. Drain and recycle all consumables;
3. Dispose of the machine in accordance with the local regulations.

ANNEX I TIGHTENING TORQUE

When tightening bolts, observe the following maximum torques (ISO898/1).

The following types of bolts are used in the machine:

- Bolts for wear parts (chisels, etc.): 10.9
- Other bolts: 8.8

Tightening torque [Nm]

		Bold strength:	
		8.8	10.9
Metric	M5	6	8,5
	M6	10,3	14,7
	M8	25,5	35,3
	M10	50	70,6
	M12	87,3	122,6
	M14	138,3	194,2
	M16	210,8	299,1
	M20	411,9	578,6
	M24	711	1000


ANNEX II RISK ANALYSIS

Based on risk analyses, measures were taken during the development of the machines to ensure the safety of users and bystanders. These results include, but are not limited to, the following measures:

Item	Risk	When	Risk reduction
Transmission	Crushing injuries by the transmission	If a bodypart or clothing comes in contact with one of the parts of the transmission	Fixed shieldings placed Safety stickers placed Safety instructions in manual
V-belt transmission	Crushing injuries by moving parts	If a bodypart or clothing comes in contact with the transmission of the V-belt/ chain and one of the pulleys	Fixed shieldings placed which can only be removed with tools Safety stickers placed Safety instructions in manual
Rotor	Crushing injuries by rotating of the rotor or coulters	If a bodypart or clothing comes in contact with the rotor	Fixed shieldings placed which can only be removed with tools Safety stickers placed Safety instructions in manual
		If a toe or feet comes under the machine during use.	
Towing eye	Crushing injuries by the towing eye	If a person comes under the machine due to unintentional use of the towing eye	Towing eye strengthened Safety stickers placed Safety instructions in manual
Dosing valve	Crushing injuries by moving parts	If a person open or close the valve by hand	Safety stickers placed Safety instructions in manual
Machine environment	Being run over by the machine and/or tractor, resulting in serious injury	If the person is between the machine and the tractor and the combination is moving (unintentionally)	Safety stickers placed Safety instructions in manual
		During transport on public roads.	
	Tilt risk of instability resulting in bruising / pinching injury	If the person is next to or under the machine during maintenance.	Safety stickers placed Safety instructions in manual
		If the person is on a slope next to the machine.	
	Injuries to the body caused by the ejection of material	If the person is behind the machine during operation.	
Breathing difficulties	Danger of breathing difficulties due to dust generation during use of the machine		
Hearing loss	Danger of hearing damage if someone is near the machine.		
Hydraulic system	Poisoning by hydraulic injection	If, in general or during maintenance, the person is in the immediate area of the hazard.	Hydraulic circuits equipped with components that comply with "EN 875". Inspection of hydraulic components
	Serious general injuries to unprotected parts of the body from exploding or escaping hoses		

ANNEX III SAFETY STICKERS

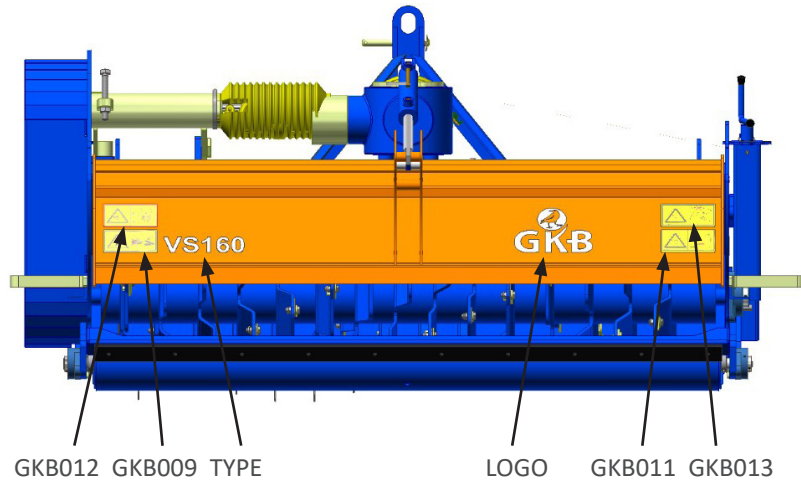
To promote safe practices and proper handling reminders, safety stickers are adhered to all machines. If a sticker cannot be read or found, it should be replaced immediately. The following page shows an overview of all the stickers and their positions.

GKB001	<i>Comply with all maintenance instructions</i>		GKB002	<i>Refer to the owner's manual. It contains useful information about the use, safety and maintenance</i>	
GKB003	<i>Regular lubrication</i>		GKB004	<i>Switch off the power take-off before lifting the implement</i>	
GKB005	<i>Risk of retraction due to rotating parts</i>		GKB006	<i>Risk of finger cutting due to rotating parts</i>	
GKB007	<i>Danger of rotating parts</i>		GKB008	<i>Risk of retraction due to rotating parts</i>	
GKB009	<i>Risk of crushing</i>		GKB010	<i>Keeps distance when the machine is in operation due to swinging parts</i>	
GKB011	<i>Keep a distance when the machine is in operation due to flying parts.</i>		GKB012	<i>Risk of crushing between tractor and implement</i>	
GKB013	<i>Danger of retraction when opening the cover when the rotor is switched on</i>		GKB014	<i>Choice in minimum to maximum adjustment</i>	
GKB015	<i>Danger of retraction due to rotating parts</i>		GKB	<i>Place a safety piece before entering the danger zone</i>	
HOT	<i>Keep a safe distance from hot surfaces</i>		018417	<i>Required speed</i>	

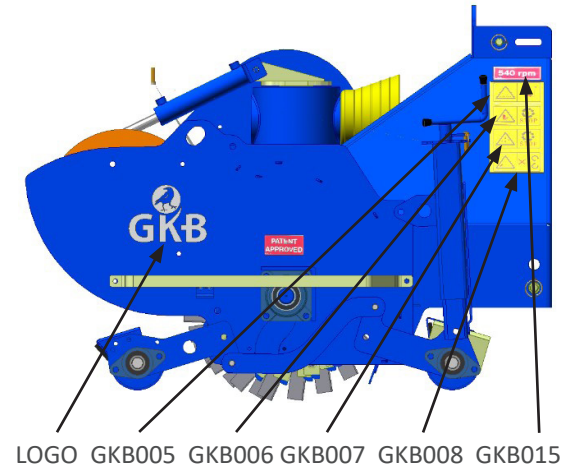
Location safetystickers

The illustrations below show all the safety stickers and their positions:

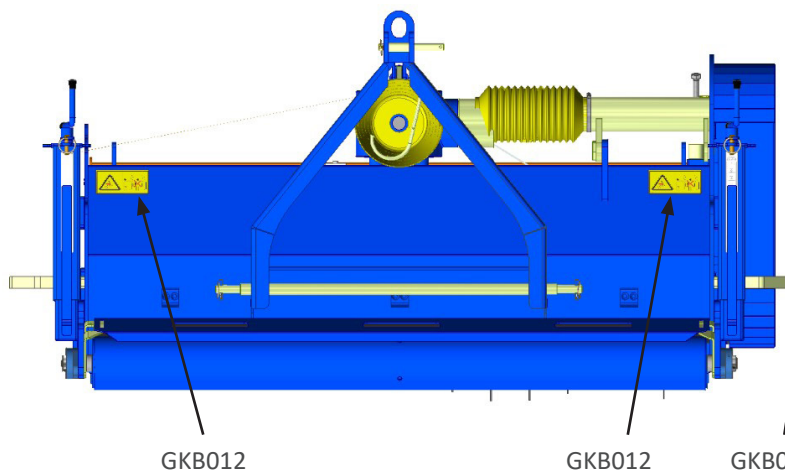
Left view:



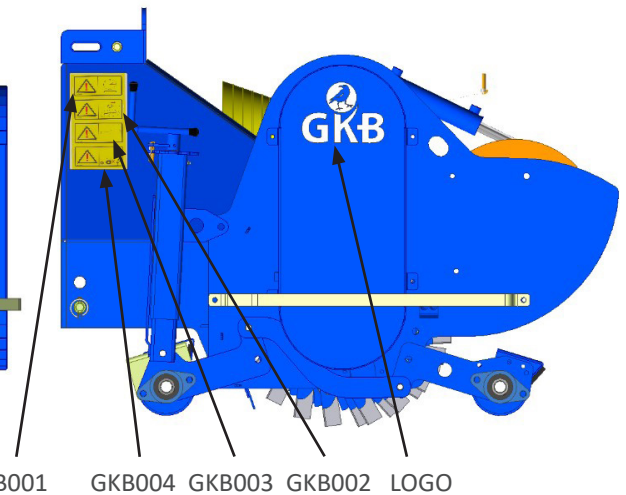
Rear view:



Right view:



Front view:



Left view with collection bin:

